ATILIM UNIVERSITY
DEPARTMENT OF COMPUTER ENGINEERING

CMPE 226 – DATA STRUCTURES
HOMEWORK II

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Due Date: May 17th 2025, 23.59

In this assignment, you will be implementing a basic **Undo System** using a stack data structure. The program simulates a simple text editor where the user can write sentences, undo the last input, and view the most recent sentence.

The main functionalities of the program are:

- Add a sentence to the editor (pushed onto the stack).
- Undo the last entered sentence (popped from the stack).
- Display the last sentence written (peek the top of the stack).
- Exit the program.

Requirements

- A stack data structure is used to store user-entered sentences in a Last-In-First-Out (LIFO) manner.
- A generic (template-based) stack implementation is used to handle dynamic types (in this case, string).
- All stack operations (push, pop, isEmpty, and stop) are used.
- User interaction is handled via console input and output.
- The assignment must be implemented in **C++**.
- The stack should be implemented using arrays or linked lists, as defined in the provided Stack.h file.

Program Flow

1. The user is presented with a menu:

    - **1:** Add a new sentence.

    - **2:** Undo the last sentence.

    - **3:** View the last sentence.

    - **4:** Exit.

2. Each new sentence is pushed onto the stack.

3. If the user selects "Undo", the last entered sentence is removed.

4. The user can view the last sentence using the stop function.

5. The program runs in a loop until the user selects Exit.

Sample Run:

```
--- Text Editor Simulation ---
1. Write new sentence
2. Undo last sentence
3. Show last sentence
4. Exit
Choose: 1
Enter sentence: It is a sunny day today.
Sentence added.

--- Text Editor Simulation ---
1. Write new sentence
2. Undo last sentence
3. Show last sentence
4. Exit
Choose: 1
Enter sentence: It is a rainy day today.
Sentence added.

--- Text Editor Simulation ---
1. Write new sentence
2. Undo last sentence
3. Show last sentence
4. Exit
Choose: 2
Last sentence removed: "It is a rainy day today."

--- Text Editor Simulation ---
1. Write new sentence
2. Undo last sentence
3. Show last sentence
4. Exit
Choose: 3
Last sentence: "It is a sunny day today."

--- Text Editor Simulation ---
1. Write new sentence
2. Undo last sentence
3. Show last sentence
4. Exit
Choose: 4
Exiting...
```

Note:
  o Use the stack header file in your program
  o Upload both **your program (.cpp) and stack headerfile (.h)** to Moodle
  o Write your name and student id in your files as a comment.

The grading of the homework will be based on:
1. Please **do not** upload **.exe** file, otherwise you will get zero.
2. Homework submitted via e-mail will be ignored.
3. This is not a group work, so if anyone cheats or has a high similarity percentage (above 90%), will get zero.
4. If your code does not compile, your program will be evaluated over 50 pts.
5. Late submissions will not be graded.